

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/824,696	FRANK, MICHAEL LOUIS	
	Examiner	Art Unit	
	Evan Pert	2826	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment and remarks filed June 12, 2006.
2. ☒ The allowed claim(s) is/are 1, 2 and 4-6.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

At [0010], change "e.g. Gallium Arsenide or Silicon." to  
--e.g. gallium arsenide or silicon--.

In claim 4, change "Silicon and Gallium Arsenide" to  
--silicon and gallium arsenide--.

[SIDE NOTE: see sentence at pages 2-3 of the Wikipedia reference]

### ***Drawings***

2. The drawings received June 12, 2006 are approved.

### ***Allowable Subject Matter***

3. Claims 1-2 and 4-6 (renumbered 1-5) are allowed.

4. The following is an examiner's statement of reasons for allowance:

The prior art does not disclose applicant's claimed circuit with a detector particularly characterized by a coupler formed by the claimed configuration of "a semiconductor substrate, comprising a first conductor" (i.e. a first conductor on or in a semiconductor substrate) with "a second conductor above the substrate and aligned with the first conductor."

The prior art shows a first and second conductor adjacent to each other on a semiconductor substrate as in Fig. 1 of US 3,500,255, yet not with a second conductor above the substrate and aligned with the first conductor.

Applicant's configuration is advantageous because semiconductor processing allows for small trace and space rules on the order of less than 1um vertical. The tighter design rules provide for tighter coupling than prior art [0017].

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 7,034,633 – Shows a first conductor above a second conductor for forming a coupler, yet does not suggest a semiconductor substrate with detector as claimed.

US 6,002,375 – Suggests a coupler in a configuration of two semiconductor substrates, yet suggests the coupler as being only in one of the substrates (i.e. "within the first substrate" per claims 9 and 20.

US 5,832,374- Suggests a difficulty in integrating a coupler in GaAs by stating that omission of the coupler makes it possible to integrate onto a GaAs base [col. 3, lines 52-58].

JP 2003-324326 - shows the integration of a coupler with matching circuit on a GaAs chip, yet not in the second conductor over first conductor configuration as claimed, for example.

Pylarinos ("Charge Pumps: An Overview") – Relevant to claim 6.

J. Abrokwa et al. ("GaAs Integrated Passive Technology at Freescale Semiconductor, Inc.") – Section entitled "Coupler" implies lateral separation of two conductors on a semiconductor substrate for forming a coupler.

Wikipedia ("Chemical element") – cited as evidence of correct nomenclature for "gallium arsenide" and "silicon" in claim 4.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 571-272-1969. The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ETP  
June 23, 2006

  
**EVAN PERT**  
**PRIMARY EXAMINER**